Air Quality Permitting
Statement of Basis

March 14, 2006

Permit to Construct No. P-040320
and
Tier I Operating Permit No. T1-040321

Nu-West Industries, Agrium Conda Phosphate Operations
Soda Springs

Facility ID No. 029-00003

Prepared by:

Ken Hanna, Permit Writer
AIR QUALITY DIVISION

DRAFT PTC FOR PUBLIC COMMENT

Table of Contents

Acronyms, Units, and Chemical Nomenclatures

AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
Btu	British thermal unit
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
HAPs	Hazardous Air Pollutants
H_2SO_4	sulfuric acid
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
km	kilometer
lb/hr	pound per hour
m	meter(s)
MMBtu	million British thermal units
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NSPS	New Source Performance Standards
Nu-West	New West Industries, Agrium Conda Phosphate Operations
PM	particulate matter
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTE	potential to emit
Rules	Rules for the Control of Air Pollution in Idaho
SIC	Standard Industrial Classification
SO_2	sulfur dioxide
SO_3	sulfur trioxide
SO_x	sulfur oxides
SPA	super phosphoric acid
T/yr	tons per year
$\mu g/m^3$	micrograms per cubic meter
UTM	Universal Transverse Mercator
VOC	volatile organic compound

Tier I Public Comment / Affected States / EPA Review Summary

A 30-day public comment period for draft modifications to the New West Industries, Agrium Conda Phosphate Operations Tier I operating permit will be held in accordance with IDAPA 58.01.01.364, *Rules for the Control of Air Pollution in Idaho*.

IDAPA 58.01.01.008.01 defines *affected states* as: *"All states: whose air quality may be affected by the emissions of the Tier I source and that are contiguous to Idaho; or that are within 50 miles of the Tier I source."*

A review of the site location information included in the permit application indicates that the facility is located with 50 miles of the states of Utah and Wyoming, and the Shoshone-Bannock Tribes. Therefore, the states of Utah and Wyoming, and the Shoshone-Bannock Tribes will also be provided an opportunity to comment on the draft modifications to the Tier I operating permit.

1. PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01.200 and 300, Rules for the Control of Air Pollution in Idaho, for issuing permits to construct (PTC) and Tier I operating permits.

2. FACILITY DESCRIPTION

The Nu-West Industries, Agrium Conda Phosphate Operations, facility (Nu-West) produces multiple fertilizer based products. The facility's primary product is in a liquid fertilizer product called Super Phosphoric Acid (SPA). SPA is produced by concentrating phosphoric acid to a level of 68-72% P_2O_5. SPA accounts for approximately 50% of the facility's total production volume. SPA is sold to customers where it is then upgraded, mixed or blended with other nutrients, pesticides and or herbicides before it is applied. Other products produced at the facility include Merchant Grade Acid, Dilute Phosphoric Acid, Purified Phosphoric Acid and Dry Granular Products.

3. FACILITY / AREA CLASSIFICATION

Nu-West Industries, Agrium Conda Phosphate Operations is defined as a major facility in accordance with IDAPA 58.01.01.008.10 Rules for the Control of Air Pollution in Idaho (Rules) because the facility has a potential to emit (PTE) for PM_{10}, SO_2, CO and NO_x of over 100 T/yr for each pollutant. Nu-West is defined as a designated facility in accordance with IDAPA 58.01.01.006.27 (sulfuric acid plant). The AIRS classification is "A" because the facility has the PTE of over 100 T/yr of a regulated air pollutant. The SIC code for this facility is 2874 which is defined as a phosphate fertilizer production plant.

The Nu-West facility is located within AQCR 61 and Universal Transverse Mercator (UTM) Zone 12. The facility is located in Caribou County, which is designated as attainment or unclassifiable for all criteria air pollutants (i.e. SO_2, NO_x , CO, PM_{10}, and lead).

No changes to the AIRS facility classification are needed as a result of these PTC and Tier I permit modifications.

4. APPLICATION SCOPE

Nu-West has submitted applications to concurrently modify PTC No. 020-00003, issued July 12, 2000, and Tier I operating permit No. T1-030319, issued April 8, 2005. The scope of this project is to increase the P_2O_5 feed rate to the SPA Plant from 225,000 tons per year to 345,000 tons per year.

4.1 Application Chronology

September 20, 2004	DEQ received a permit modification request
October 19, 2004	DEQ requested additional information to make the application complete
November 22, 2004	DEQ received additional information and a Tier I significant modification request
December 20, 2004	DEQ declared the applications to be complete
March 8, 2005	DEQ provided draft permits to Agrium for review
April 25, 2005	DEQ received comments from Agrium regarding the draft permits
July 5, 2005	DEQ received information for the PSD significance determination

October 211, 2005	DEQ received information for the PSD significance determination
November 4, 2005	DEQ received information for the PSD significance determination

5. PERMIT ANALYSIS

This section of the Statement of Basis describes the regulatory requirements for this PTC action.

5.1 Equipment Listing

Table 5.1 lists all sources affected by this project.

Table 5.1 SUMMARY OF REGULATED SOURCES

Source	Existing Maximum Production/Input	Projected Maximum Input
SPA Plant	225,000 tons per year P_2O_5, existing PTC Limit	345,000 tons per year P_2O_5
SPA Oxidation Process	225,000 tons per year P_2O_5, existing PTC Limit	345,000 tons per year P_2O_5
Phosphoric Acid Plant	560,000 tons per year P_2O_5, per existing PTC analysis	560,000 tons per year P_2O_5
Boiler B-5	1, 768 MMscf/yr, existing PTC Limit (based on 1050 Btu/scf)	1,768 MMscf/yr [a]
Thermal Oil Heater 1	120 MMscf/Yr = (14 MMBtu/hr)(8760 hr/yr)(scf/1020 Btu) per existing PTC analysis	179 MMscf/yr
Thermal Oil Heater 2	120 MMscf/Yr, per existing PTC analysis	159 MMscf/yr

[a] Although Attachment A of the permit application refers 1,873 MMscf/yr, the maximum fuel input is limited by the existing permit limit to 1,768 MMscf/yr, and this limit is not changed.

5.2 Emissions Inventory

Emissions increases associated with this project were estimated by Agrium and provided in the permit application. This information was reviewed, found to be consistent with DEQ methods, and a copy is provided in Appendix A. For the purpose of evaluating NAAQs and TAP requirements, the estimated changes in potential emissions resulting from this project are presented in Tables 5.2-5.6. For purposes of evaluating the applicability of PSD requirements, emissions are provided in the Regulatory Review Section below under IDAPA 58.01.01.205.

The proposed increase in equivalent P_2O_5 feed to the SPA plant from 225,000 to 345,000 tons per year will increase potential emissions from the emissions units that are included in this project. In particular, increases in potential emissions from this project will only occur from the following emissions units: SPA and the Thermal Oil Heaters (see Table 5.1). Potential emissions from the other sources included in this project (i.e., Phosphoric Acid Plant, SPA Oxidation Process and Boiler B-5) will not increase because after the modification permitted emissions rate limits and production limits for each unit will be the same after the modification as before the modification. For example, the potential to emit (PTE) for the Phosphoric Acid Plant (including the emissions units associated with it such as the gypsum stack, ore handling, road dust, etc.) is based on a permitted P_2O_5 production limit of 560,000 tons per year both before and after this modification; therefore, the PTE of the Phosphoric Acid plant is not changed. For Boiler B-5, the existing emission rate limits will not be changed. Likewise, for the SPA Oxidation Process, the existing and proposed PTE is based on the existing five tons per year NO_x emission limit in Permit Condition 6.3 of the Tier I Permit. For the SPA and Thermal Oil Heaters, the existing emissions rate information (i.e., emissions before the modification) was obtained from the application for the July 12, 2000 PTC (refer to copies of tables in Appendix A called “Expansion Project Emissions (T/yr)” and “Expansion Project Emission Factors”), and the proposed emissions are based on information provided in the application for this permit modification.

Table 5.2 EMISSION ENVENTORY - NO_x

Source	Existing PTE (T/yr)	PTE of Proposed Modification (T/yr)	PTE Increase (T/yr)	Modeling Threshold
SPA	0	0	0	---
Thermal Oil Heaters 1 & 2	12.3	12.4	+ 0.1	---
SPA Oxidation	5	5	0	---
Boiler B-5	70.71[a]	54.13	0	---
Project Total	---	---	+ 0.1	1 ton/yr

[a]Permit limit in PTC No. 029-00003, issued 7/7/95

Table 5.3 EMISSION INVENTORY - CO

Source	Existing Maximum Emission Rate (lb/hr)	Proposed Maximum Emission Rate (lb/hr)	Emissions Increase (lb/hr)	Modeling Threshold
SPA	0	0	0	---
Thermal Oil Heaters 1 & 2	1.2 [a]	3.2 [b]	2.0	---
SPA Oxidation	0	0	0	---
Boiler B-5	8.42 [c]	6.07 [d]	0	---
Project Total	---	---	+ 2.0	14 lb/hr

[a](14 MMBtu/hr)(scf/1000 Btu)(84 lb/MMscf) = 1.2 lb/hr
[b](179 + 159 MMscf/yr)(yr/8760 hr)(84 lb/MMscf) = 3.2 lb/hr
[c]Permit limit in PTC No. 029-00003, issued 7/7/95
[d](26.60 tons per year)(2000 lb/ton)(yr/8760 hr) = 6.07 lb/hr

Table 5.4 EMISSION INVENTORY - PM_{10}

Source	Existing PTE (T/yr)	PTE of Proposed Modification (T/yr)	PTE Increase (T/yr)	Modeling Threshold
Phosphoric Acid Plant	3.62	3.62	0	---
SPA	1.75	2.14	+0.39	---
Thermal Oil Heaters 1 & 2	0.9	1.28	+ 0.38	---
SPA Oxidation	5.0	5.0	0	---
Boiler B-5	4.42	4.42	0	---
Ore storage and transfer fugitive emissions	0.2	0.2	0	---
Gyp stack fugitive emissions (including roads)	0.7	0.7	0	---
Project Total	---	---	+ 0.77	1 ton/yr

Table 5.5 EMISSION INVENTORY - SO_2

Source	Existing PTE (T/yr)	PTE of Proposed Modification (T/yr)	PTE Increase (T/yr)	Modeling Threshold
SPA	0	0	0	---
Thermal Oil Heaters 1 & 2	0.1	0.1	0	---
SPA Oxidation	0	0	0	---
Boiler B-5	0.53	0.53	0	---
Project Total	---	---	0	1 ton/yr

Table 5.6 EMISSION INVENTORY - FLUORIDE

Source	Existing Maximum Emission Rate (lb/hr)	Proposed Maximum Emission Rate (lb/hr)	PTE Increase (lb/hr)	Screening Emission Level
SPA	0.224 [a]	0.343 [b]	+ 0.119	---
Thermal Oil Heaters 1 & 2	0	0	0	---
SPA Oxidation	0	0	0	---
Boiler B-5	0	0	0	---
Phosphoric Acid Plant	0.86 [c]	0.86	0	---
Gyp Stack Fugitives	8.3 [d]	8.3	0	---
Project Total	---	---	+ 0.119	0.167 lb/hr

[a](0.0087 lb F/ton P_2O_5)(225,000 tons P_2O_5/yr)(yr/8760 hr) = 0.224 lb/hr
[b](0.0087 lb F/ton P_2O_5)(345,000 tons P_2O_5/yr)(yr/8760 hr) = 0.343 lb/hr
[c](3.78 ton F/yr)(2000 lb/ton)(yr/8760 hr) = 0.86 lb/hr
[d](36.5 ton F/yr)(2000 lb/ton)(yr/8760 hr) = 8.3 lb/hr

An increase in potential TAP emissions from increased natural gas combustion in the Thermal Oil Heaters would occur (approximately an 11 MMBtu/hr increase). The existing fuel consumption limit for Boiler B-5 will not change, therefore, no increase in TAPs emissions from this boiler will occur. Fluoride emissions will also increase due to the increased production levels, however, this increase is less than the EL (see Table 5.6). The increased TAP emissions that exceed the corresponding screening emissions limit (EL) are listed in Table 5.7.

Table 5.7 SUMMARY OF TAP EMISSION INCREASES FOR THE PROJECT

TAP	Emissions Rate Increase (lb/hr)	Screening Emissions Level (lb/hr)	Max modeled Concentration ($\mu g/m^3$)	AACC ($\mu g/m^3$)	Exceed AAC? (Y/N)
Formaldehyde	9.03E-04	5.10E-04	5.90E-04	7.70E-02	N
Arsenic	2.41E-06	1.50E-06	1.60E-06	2.30E-04	N
Cadmium	1.33E-05	3.70E-06	8.70E-06	5.60E-04	N

5.3 Modeling

TAP emissions increases associated with this project were modeled by the applicant in accordance with the State of Idaho Air Quality Modeling Guidance to demonstrate compliance with the TAP requirements under IDAPA 58.01.01.203 and 210. The applicant's analysis was reviewed and found to be consistent with DEQ methods and procedures. Details are provided in Appendix B. Modeling for criteria pollutants was not necessary because the criteria emission rate increases associated with the project are below the modeling thresholds listed in Table 1 of the *State of Idaho Air Quality Modeling Guideline* (see Tables 5.3-5.6 above).

5.4 Regulatory Review

This section describes the regulatory analysis of the applicable air quality rules with respect to the permits.

IDAPA 58.01.01.201 .... Permit to Construct Required

Agrium has requested PTC changes to increase the P_2O_5 feed to the Superphosphoric Acid process from 225, 000 tons per year to 345,000 tons per year. PTC changes to improve the operating, monitoring, and recordkeeping provisions for the Superphosphoric Acid Oxidation Process, for purposes of limiting the NO_x PTE, were also requested. The information provided below shows how the requirements of IDAPA 58.01.01.200-228 are met.

IDAPA 58.01.01.203, 210..................... Demonstration of Preconstruction Compliance with Toxic Standards

An analysis of increased emissions of toxic air pollutants (TAP) resulting from this permit modification shows that the TAP requirements are met. With regard to fluoride, the increase is estimated to be 0.12 lb/hr (see the Emission Inventory section above). Since this increase is less than 0.167 lb/hr, the screening emission level given by IDAPA 58.01.01.585, then preconstruction compliance is demonstrated. Increased natural gas combustion of approximately 11 MMBtu/hr will also occur for the Thermal Oil Heaters. The increased TAP emissions associated with this change was estimated (see Section 5.2 above) and it was found that three TAPs would exceed the EL: formaldehyde, arsenic, and cadmium. Modeling information was received on October 21, 2005, which shows that the uncontrolled modeled concentration of the emissions increases of these three TAPs would not exceed the respective AACC, therefore, compliance with IDAPA 58.01.01.210.05 and 210.06 was demonstrated.

IDAPA 58.01.01.205............................PTC Requirements for Major Facilities or Major Modifications

With regard to the Prevention of Significant Deterioration (PSD) requirements, two issues need to be addressed for this permit modification; 1) is the increased allowable P_2O_5 feed to the SPA from 225,000 to 345,000 tons per year a major modification?; and with the revised monitoring approach, is the five tons per year (T/yr) NO_x limit for the SPA Oxidation Process still federally enforceable?

Major Modification Status.

IDAPA 58.01.01.205.01 [40 CFR 52.21(a)(2)(iv)]. This project to increase P_2O_5 feed to the SPA from 225,000 to 345,000 tons per year is not a major modification based on the following analysis. A project is a major modification for a regulated NSR pollutant if it causes two types of emissions increases - a significant emissions increase and a significant net emissions increase. The project is not a major modification if it does not cause a significant emissions increase. These rules specify a two part test to make this determination. The first test is used to determine if the project will cause a significant emissions increase, and this is given by 52.21(a)(2)(iv)(b) through (f). The second test, if required, is used to determine if the project will cause a significant net emissions increase, and this is given by 52.21(a)(2)(iv)(b) and 52.21(b)(3).

The "project", as defined by 52.21(b)(52) means "*a physical change in, or change in the method of operation of, an existing major stationary source*." For purposes of this analysis, the "project" includes the following emissions units: Superphosphoric Acid Plant (SPA); Phosphoric Acid Plant (which includes fugitive emissions from ore storage and transfer, roads and the gypsum stack); Boiler B-5; Thermal Oil Heaters; and the SPA Oxidizer.

This permit modification pertains only to "existing emissions units," therefore, the test under 52.21(a)(2)(iv)(c) is used to determine if the project is significant. This regulation reads as follows:

> *A significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the difference between the projected actual emissions (as defined in [52.21(b)(41)]) and the baseline actual emissions (as defined in [52.21 (b)(48)(i) and (ii)]), for each existing emissions unit, equals or exceeds the significant amount for that pollutant (as defined in [52.21(b)(23)]).*

This analysis was performed by the applicant and a copy is included in Appendix A. The analysis was reviewed by DEQ and found to be consistent with DEQ methods. The results are summarized in Tables 5.8 through 5.14 below. These results show that the project will not cause a significant emissions increase and, therefore, netting is not necessary and the project is not a major modification.

Table 5.8 PROJECT-SPECIFIC EMISSIONS INCREASE ANALYSIS FOR EXISTING UNITS - NO_x

Source	Emissions - Per Year (T/YR)		
	Consecutive Baseline Years		Projected Actual (PAE)
	2003 Actual	2004 Actual	
Phosphoric Acid Plant	0.0	0.0	0.0
Superphosphoric Acid (SPA) Plant	0.0	0.0	0.0
Boiler B-5	21.08	28.84	54.13
Thermal Oil Heaters	8.40	9.20	12.4
SPA Oxidizer	0.45	0.46	0.85
Totals, All Sources	29.93	38.50	67.38
Baseline Actual Emissions (BAE) (average of the highest 2-year period)	(29.93 + 38.50)/2 = 34.22		---
Difference = PAE Total - BAE Total	67.38 - 34.22 = 33.16		
Significant Emission Rate	40		
Does the Difference Exceed Significant (Y/N)	N		

Table 5.9 PROJECT-SPECIFIC EMISSIONS INCREASE ANALYSIS FOR EXISTING UNITS - FLUORIDE

Source	Emissions - Per Year (T/YR)		
	Consecutive Baseline Years		Projected Actual (PAE)
	2003 Actual	2004 Actual	
Phosphoric Acid Plant	2.47	2.71	3.78
Superphosphoric Acid (SPA) Plant	0.37	0.42	1.50
Boiler B-5	0.0	0.0	0.0
Thermal Oil Heaters	0.0	0.0	0.0
SPA Oxidizer	0.0	0.0	0.0
Gypsum Stack Fugitives	36.5	36.5	36.5
Totals, All Sources	39.3	39.6	41.8
Baseline Actual Emissions (BAE) (average of the highest 2-year period)	(39.3 + 39.6)/2 = 39.5		---
Difference = PAE Total - BAE Total	41.8 - 39.5 = 2.3		
Significant Emission Rate	3		
Does the Difference Exceed Significant (Y/N)	N		

Table 5.10 PROJECT-SPECIFIC EMISSIONS INCREASE ANALYSIS FOR EXISTING UNITS - CO

Source	Emissions - Per Year (T/YR)		
	Consecutive Baseline Years		Projected Actual (PAE)
	2003 Actual	2004 Actual	
Phosphoric Acid Plant	0.0	0.0	0.0
Superphosphoric Acid (SPA) Plant	0.0	0.0	0.0
Boiler B-5	10.36	14.7	26.50
Thermal Oil Heaters	9.24	10.25	14.18
SPA Oxidizer	0.0	0.0	0.0
Totals, All Sources	19.60	24.42	40.77
Baseline Actual Emissions (BAE) (average of the highest 2-year period)	(19.60 + 24.42)/2 = 22.01		---
Difference = PAE Total - BAE Total	40.77 - 22.01 = 18.76		
Significant Emission Rate	100		
Does the Difference Exceed Significant (Y/N)	N		

Table 5.11 PROJECT-SPECIFIC EMISSIONS INCREASE ANALYSIS FOR EXISTING UNITS - PM_{10}

Source	Emissions - Per Year (T/YR)		
	Consecutive Baseline Years		Projected Actual (PAE)
	2003 Actual	2004 Actual	
Phosphoric Acid Plant	3.51	3.62	3.62
Superphosphoric Acid (SPA) Plant	1.13	1.18	2.14
Boiler B-5	2.77	3.79	4.42
Thermal Oil Heaters	0.84	0.93	1.28
SPA Oxidizer	0.0	0.0	0.0
Ore storage and transfer fugitive emissions	0.1	0.1	0.2
Gyp stack fugitive emissions (including road dust)	0.5	0.5	0.7
Totals, All Sources	8.85	10.1	12.4
Baseline Actual Emissions (BAE) (average of the highest 2-year period)	(8.85 + 10.1)/2 = 9.48		---
Difference = PAE Total - BAE Total	12.4 - 9.48 = 2.93		
Significant Emission Rate	15		
Does the Difference Exceed Significant (Y/N)	N		

Table 5.12 PROJECT-SPECIFIC EMISSIONS INCREASE ANALYSIS FOR EXISTING UNITS - PM

Source	Emissions - Per Year (T/YR)		
	Consecutive Baseline Years		Projected Actual (PAE)
	2003 Actual	2004 Actual	
Phosphoric Acid Plant	3.51	3.62	3.62
Superphosphoric Acid (SPA) Plant	1.13	1.18	2.14
Boiler B-5	2.77	3.79	4.42
Thermal Oil Heaters	0.84	0.93	1.28
SPA Oxidizer	0.0	0.0	0.0
Ore storage and transfer fugitive emissions	0.3	0.3	0.4
Gyp stack fugitive emissions (including road dust)	2.0	2.2	3.0
Totals, All Sources	10.6	12.0	14.9
Baseline Actual Emissions (BAE) (average of the highest 2-year period)	(10.6 + 12.0)/2 = 11.3		---
Difference = PAE Total - BAE Total	14.9 - 11.3 = 3.6		
Significant Emission Rate	25		
Does the Difference Exceed Significant (Y/N)	N		

Table 5.13 PROJECT-SPECIFIC EMISSIONS INCREASE ANALYSIS FOR EXISTING UNITS - VOC

Source	Emissions - Per Year (T/YR)		
	Consecutive Baseline Years		Projected Actual (PAE)
	2003 Actual	2004 Actual	
Phosphoric Acid Plant	0.0	0.0	0.0
Superphosphoric Acid (SPA) Plant	0.0	0.0	0.0
Boiler B-5	0.5	0.6	1.2
Thermal Oil Heaters	0.5	0.7	0.9
SPA Oxidizer	0.0	0.0	0.0
Totals, All Sources	1.08	1.32	2.15
Baseline Actual Emissions (BAE) (average of the highest 2-year period)	(1.08 + 1.32)/2 = 1.20		---
Difference = PAE Total - BAE Total	2.15 - 1.20 = 0.95		
Significant Emission Rate	40		
Does the Difference Exceed Significant (Y/N)	N		

Table 5.14 PROJECT-SPECIFIC EMISSIONS INCREASE ANALYSIS FOR EXISTING UNITS - SO_2

Source	Emissions - Per Year (T/YR)		
	Consecutive Baseline Years		Projected Actual (PAE)
	2003 Actual	2004 Actual	
Phosphoric Acid Plant	0.0	0.0	0.0
Superphosphoric Acid (SPA) Plant	0.0	0.0	0.0
Boiler B-5	0.22	0.30	0.53
Thermal Oil Heaters	0.07	0.07	0.10
SPA Oxidizer	0.0	0.0	0.0
Totals, All Sources	0.29	0.37	0.63
Baseline Actual Emissions (BAE) (average of the highest 2-year period)	(0.29 + 0.37)/2 = 0.33		---
Difference = PAE Total - BAE Total	0.63 - 0.33 = 0.30		
Significant Emission Rate	40		
Does the Difference Exceed Significant (Y/N)	N		

IDAPA 58.01.01.205.01 [40 CFR 52.21(r)(6) and (7)]. There is a reasonable chance that this project, that is not part of a major modification, may result in a significant emissions increase (based on NO_x and fluoride), and the methods specified in 40 CFR 52.21(b)(41)(ii)(a) through (c) have been used to calculate the projected actual emissions. Therefore, the recordkeeping requirements under 40 CFR 52.21(r)(6) and (7) apply, including the following:

Under 40 CFR 52.21(r)(6)(i)(b), the list of emissions units shall include the following, at a minimum: Superphosphoric Acid Plant (SPA); Phosphoric Acid Plant; Boiler B-5; Thermal Oil Heaters; SPA Oxidizer; ore storage and transfer fugitive emissions; and gypsum stack fugitive emissions (including road dust).

Under 40 CFR 52.21(r)(6)(iii), annual emissions records shall be maintained for any regulated NSR pollutant that could increase as a result of the project and that is emitted by any emissions unit identified under 40 CFR 52.21(r)(6)(i)(b). For purposes of meeting this requirement, records of the following NSR pollutants shall be maintained: NO_x, Fluoride, CO, PM_{10}, PM, and VOC. Also, the records shall be maintained for a period of five years after the change since neither the design capacity or the potential to emit is increased as a result of the project.

For purposes of submitting reports as specified in 40 CFR 52.21(r)(6)(v), the relevant information for this "project" is provided in Table 5.15: baseline actual emissions; the annual emission rates that would exceed the baseline actual emissions by a significant amount; and the preconstruction projections. Only information for NO_x and fluoride are provided because these are the only pollutants for which there is a reasonable chance that this project may result in a significant emissions increase.

Table 5.15 40 CFR 52.21(r)(6)(v) INFORMATION

	NO_x (T/yr)	**Fluoride (T/yr)**
Baseline Actual Emissions (BAE)	34.22	39.5
Significant defined by 52.21(b)(23)	40	3
Annual emission rate that would exceed BAE by a significant amount	74.22 (i.e., 34.22 + 40)	42.5 (i.e., 39.5 + 3)
Preconstruction projection	67.38	41.8

Five Tons Per Year NO_x Limit for the Superphosphoric Acid Oxidation Process.

The five tons per year NO_x limit for the Superphosphoric Acid Oxidation Process scrubber was included in the July 12, 2000 PTC to limit the total NO_x emissions of the Sustaining and Expansion Project to less than the 40 tons per year significant level for PSD. For PSD purposes, it is important that this limit be preserved. The five tons per year limit was based on a very conservative pre-construction emission estimate of 0.045 lb NO_x per ton of equivalent P_2O_5 feed. Following construction, a performance test was conducted on May 8, 2002, and the actual emission rate was measured to be 0.0049 lb NO_x per ton of P_2O_5 feed, which is less by a factor of nearly 10. On this basis, Agrium has requested revisions to the operating, monitoring, and recordkeeping requirements associated with the five tons per year NO_x limit.

Existing emission limits, operating, monitoring, and recordkeeping requirements are established in the July 12, 2000 PTC in conditions 1.3, 2.2, 3.1, 3.2, and 3.12 for purposes of making the five tons per year NO_x limit federally enforceable. These conditions include NO_x emission limits of five tons per year and 0.045 lb-NO_x/ton P_2O_5, a 225,000 tons per year P_2O_5 feed limit, P_2O_5 feed monitoring, and a NO_x performance test.

Based on the May 8, 2002, performance test results, the 225,000 tons per year P_2O_5 feed limit is no longer an effective operating limit. In fact using any operating limit based on tons per year of P_2O_5 feed limit is not ideal since it's now apparent that it takes a feed rate of 2,040,000 tons per year P_2O_5 before the five tons per year NO_x emissions limit is reached, whereas the maximum estimated plant feed rate is 345,000 tons per year P_2O_5 (see below).

Determine the P_2O_5 feed rate that corresponds to an emission rate of five tons per year of NO_x :

$$(0.0049 \text{ lb } NO_x/\text{ton } P_2O_5)\,(x) = 5 \text{ tons per year}$$

$$x = (5 \text{ tons per year})(2000 \text{ lb/ton}) / (0.0049 \text{ lb } NO_x/\text{ton } P_2O_5)$$

$$x = 2{,}040{,}000 \text{ tons } P_2O_5 / \text{yr}$$

On this basis, it is not practical to rely on a P_2O_5 feed rate limit for purposes of making the five tons per year NO_x limit federally enforceable. Therefore, the emission limit, operating, monitoring, and recordkeeping requirements are revised as follows. In particular, the permittee is required to install maintain and operate a NO_x scrubber and to monitor actual NO_x emissions using a continuous monitoring system.

With regard to NO_x performance testing for the Superphosphoric Acid Oxidation Process, it has been determined that the initial performance test conducted on May 8, 2002, is sufficient for compliance demonstration purposes and additional testing is not necessary. Therefore, condition 3.12 of the July 12, 2000 PTC and condition 6.21 of the April 8, 2005 Tier I were removed. The measured emission rate of be 0.0049 lb NO_x per ton of P_2O_5 feed may continue to be used in conjunction with the NSPS-required P_2O_5 feed rate records to show compliance with the five tons per year NO_x limit as follows:

$$NO_x = (P_2O_5 \text{ feed for the 12-month period})(0.0049 \text{ lb } NO_x \text{ per ton of } P_2O_5 \text{ feed})(\text{ton}/2000 \text{ lb})$$

IDAPA 58.01.01.209.05.c...............PTC Procedures for Tier I Sources

This PTC modification is for a Tier I source, therefore, the PTC is processed according to the procedures for a Tier I source. A draft PTC will be provided for public comment and affected state review per Sections 209, 364, and 365. A proposed PTC will be prepared and sent to EPA for review per Section 366. EPA review can occur concurrently with public comment and affected state review of the draft permit, per Subsection 209.05.c.iii, except that if the draft permit is revised in response to public comment or affected state review, DEQ must send the revised proposed PTC to EPA for review in accordance with Section 366.

Except as otherwise provided by these rules, the Department shall prepare and issue to the owner or operator a final permit to construct or denial per Section 367. The permittee may at any time after issuance, request that the PTC requirements be incorporated into the Tier I operating Permit through an administrative amendment in accordance with Section 381.

IDAPA 58.01.01.381, 382.....................Tier I Administrative Amendment upon PTC Issuance

The requested changes are a significant modification to the Tier I permit under IDAPA 58.01.01.382.01.a since implementation of the changes would "violate an existing Tier I permit condition derived from an applicable requirement." The changes will be implemented as a Tier I Administrative Amendment upon completion of the requirements specified in IDAPA 58.01.001.209.05.c and 381. Refer to the information provided above under IDAPA 58.01.01.209.05.c for details.

5.5 Fee Review

DEQ received a $1,000 PTC application fee (IDAPA 58.01.01.224) and a $250 PTC processing fee (IDAPA 58.01.01.225) from Nu-West on December 3, 2004. A PTC processing fee of $2500 is required because the modification will allow an annual increase of emissions between one and ten tons. Therefore, a balance of $2250 is due prior to issuance of a PTC. The change in emissions associated with this modification is given in Table 5.16.

Nu-West is a major facility as defined in IDAPA 58.01.01.008.10. Therefore, Tier I registration fees are applicable in accordance with IDAPA 58.01.01.387. As of March 15, 2006, the current balance due for Tier I fees is $0.00.

Table 5.16 PTC PROCESSING FEE TABLE

Emissions Inventory			
Pollutant	**Annual Emissions Increase (T/yr)**	**Annual Emissions Reduction (T/yr)**	**Annual Emissions Change (T/yr)**
NO_X	0.7	0	0.7
SO_2	0.0	0	0.0
CO	0.0	0	0.0
PM_{10}	0.7	0	0.7
VOC	0.0	0	0.0
TAPS/HAPS	0.6	0	0.6
Total:	2.0	0	**2.0**
Fee Due	**$ 2250.00**		

5.6 Regional Review of Draft Permit

Copies of the facility-draft PTC and Statement of Basis were provided to the Pocatello Regional Office for review on February 17, 2004 and March 15, 2006, and a response was received on February 22, 2004.

5.7 Facility Review of Draft Permit

Copies of the draft PTC and Statement of Basis were issued to Agrium on March 8, 2005, for review. Comments were received from Agrium on April 25, 2005, including proposed changes to improve NO_x monitoring by using a continuous NO_x monitoring system instead of monitoring NO_x control equipment operating parameters. These improved monitoring requirements were incorporated into the draft permits.

6. PERMIT CONDITIONS - SUPERPHOSPHORIC ACID OXIDATION PROCESS

This section summarizes all changes/revisions made to the PTC issued on July 12, 2000, and the Tier I operating permit issued on April 8, 2005, with regard to the Superphosphoric Acid Oxidation Process. The permit condition numbers listed below refer to the revised/new PTC and Tier I permits unless noted otherwise.

PTC Condition 3.1 and Tier I Condition 6.1

A statement was added to these permit conditions to make it clear that the Conditioning Vent Scrubber System is part of the Phosphoric Acid Production Process.

PTC Conditions 3.3 and 3.6, and Tier I Conditions 6.3 and 6.8

The NO_x emission rate limit specified as “0.045 pounds per ton of equivalent P_2O_5 feed” was removed, since this limit is not necessary assure emissions from the Superphosphoric Acid Oxidation Process stay below five tons per year. Instead, compliance with the five tons per year NO_x limit will be demonstrated using a continuous NO_x monitoring system. In particular, improved monitoring requirements were added that require installation, calibration, maintenance and operation of a continuous NO_x monitoring system to show compliance with the five tons per year NO_x emissions limit. Refer to the regulatory analysis for IDAPA 58.01.01.205 for details. Also, the averaging time for the annual emission rate limit was changed from "tons per year" to "tons per consecutive 12-month period," including Appendix A of the PTC, which is consistent with DEQ and EPA practices.

PTC Conditions 3.4 and 4.2, and Tier I Conditions 2.3 and 6.6

On June 13, 2002, 40 CFR 63.604 and 63.624 were amended by see 67 FR 40818. The requirement to maintain three-hour averages of "…the pressure drop across each scrubber and the flow rate of the scrubbing liquid…" was changed to be a "daily" average in accordance with the revised regulation.

PTC Condition 3.5 and Tier I Condition 6.7

The 225,000 tons per year equivalent P_2O_5 feed limitation for the Superphosphoric Acid Oxidation Process was increased to 345,000 tons per year which corresponds to the feed rate used in the application to demonstrate compliance with NAAQS, TAP and PSD rules. For details, refer above to the Modeling Section and the Regulatory Review Section above under IDAPA 58.01.01.205 and 210.

Condition 3.12 in the July 12, 2000 PTC and Condition 6.21 in the April 8, 2005 Tier I

Permit condition 3.12 in the July 12, 2000 PTC specifies NO_x performance test requirements for the Superphosphoric Acid Oxidation Process. Based on the results of the initial NO_x performance test for this process, it has been determined that a one time test is sufficient for this source and, therefore, this test requirement has been removed. Refer to the regulatory analysis under IDAPA 58.01.01.205 for details.

PTC Conditions 3.19 and Tier I Conditions 6.22

Recordkeeping requirements specified by IDAPA 58.01.01.205.01[40 CFR 52.21(r)(6) and (7)] were included in the permit. Refer to the regulatory analysis under IDAPA 58.01.01.205 for details.

Section Titled "Calciners and Rock Dryers" in the July 12, 2000 PTC

The entire section in the July 12, 2000 PTC, which had the title of "Calciners and Rock Dryers" was deleted, since these sources no longer exist. In the Tier I permit, this section was previously removed as part of the modification issued on April 8, 2005. As a result, the numbering of permit conditions in the PTC was changed, but the numbering of the Tier I was not.

PTC Section Titled "Granulation Plant" in the July 12, 2000 PTC

The section titled "Phosphate Fertilizers Production Plants" in the July 12, 2000 PTC was changed to be "Granulation Plant." This change was made for consistency with the Tier I permit.

PTC General Provisions and Tier I Conditions 2.23, 6.35, and 8.20

The most recent version of the PTC General Provisions was used in the modified PTC and Tier I. As part of this change, General Provision B was re-numbered, so it now appears as General Provision 2.

General Provision F in the July 12, 2000 PTC and Conditions 2.24, 6.36, and 8.21 in the April 8, 2005 Tier I

PTC General Provision F in the July 12, 2000 PTC, which limited operations after a source test to 120% of the operating rate during the test, was removed from the PTC and the Tier I permits. In addition, the cross-reference to this PTC general provision was removed from condition 8.9 of the Tier I permit.

Tier I Condition 1.23

The word “Conditions” was changed to “Sections”, so that the meaning of Permit Condition 1.23 is more clear. It now reads as follows: … plant sources in Permit Sections 2 and 6 in excess of … No other provisions of the original PTC or Tier I permit were changed.

7. PUBLIC COMMENT

A 30-day public comment period on the modified draft PTC will be held in accordance with IDAPA 58.01.01.209.05.c and 58.01.01.364. A notice will be published in the Caribou County Sun and copies of the proposed action will be placed in the local area in accordance with these rules.

8. RECOMMENDATION

Based on review of application materials, and all applicable state and federal rules and regulations, staff recommend that draft PTC No. P-040320 for the Superphosphoric Acid Plant be issued for public comment, affected states, and EPA review. The project does not involve PSD requirements.

KH/bf Permit No. P-040320 & T1-040321

G:\Air Quality\Stationary Source\SS Ltd\PTC\Agrium\P-040320\PC\P-040320 PTC & T1 PC SB.DOC

Appendix A

Emission Estimates
And
Major Modification Analysis

Geomatrix

November 4, 2005

RECEIVED

NOV 07 2005

Department of Environmental Quality
State Air Program

Mr. James Cagle
Agrium U.S. Inc.
Conda Phosphate Operations
3010 Conda Road
Soda Springs, Idaho 83276

Re: IDEQ Data Request Response
Fugitive Fluoride Emissions from Gyp Stack Ponds

Dear Mr. Cagle:

On June 20, 2005, Agrium Conda Phosphate Operations (CPO) submitted information responding to a request from Ken Hanna of the Idaho Department of Environmental Quality (IDEQ) regarding a PSD applicability analysis for the proposed increase in CPO's superphosphoric acid (SPA) production limit. Subsequently, Ken Hanna has requested additional information regarding fugitive emissions of fluoride from the gyp stack ponds. This letter provides information responding to Ken Hanna's subsequent information request regarding fluoride emissions.

Fugitive Fluoride Emissions

Gyp is delivered to the gyp stack pond as slurry allowing the gyp to settle. The gyp stack pond water contains fluorides in several chemical forms. An emission factor of 1.6 pounds per acre per day (lb/acre/day) is used to calculate fugitive emissions of fluoride from the gyp stack pond. This emission factor is based on the emission factor presented in Section 5.11 of the 4th edition of EPA's AP-42 documents. The 4th edition provides an emission factor of 1.12 lb/ton of P_2O_5 produced. In a footnote in this same section, a typical equivalent between P_2O_5 production and pond size was given as 0.7 acres per 1 ton of P_2O_5 produced. Using the emission factor and the pond size equivalent, an emission factor of 1.6 lb/ton/day for fugitive emissions of fluoride is used. This emission factor was relied upon in generating the recent gyp stack PTC application submitted on April 29, 2005.

The increase in CPO's SPA production limit does not affect the surface area of the gyp stack ponds since the footprint of the gyp stacks are not increasing. Therefore, the increase in SPA production does not increase fugitive emissions of fluoride from the gyp stack ponds. As detailed within the attached project emission inventory, the difference in fugitive emissions of fluoride is 0 tons per year.

If you have any questions regarding information in this letter, or if you need any additional information, please do not hesitate to contact me at 425.921.4015.

Sincerely,
Geomatrix Consultants, Inc.

Rafe Christopherson, P.E.
Air Quality Engineer

Attachments: Attachment 1: Updated PSD Applicability Analysis

19203 36th Avenue West, Suite 101
Lynnwood, Washington 98036-5772
Tel 425.921.4000
Fax 425.921.4040
www.geomatrix.com

Attachment 1

Updated PSD Applicability Analysis

PROJECT-SPECIFIC VOLATILE ORGANIC COMPOUND EMISSION CHANGES				
	EMISSIONS PER YEAR (TPY)			
SOURCE	2002	2003	2004	Future
Phosphoric Acid Plant	0.0	0.0	0.0	0.0
Superphosphoric Acid Plant	0.0	0.0	0.0	0.0
Boiler B-5	0.3	0.5	0.6	1.2
Thermal Oil Heaters	0.9	0.6	0.7	0.9
SPA Oxidizer	0.0	0.0	0.0	0.0
TOTAL (TPY)	1.22	1.08	1.32	2.15
DIFFERENCE (TPY)		1.00	0.95	
SIGNIFICANT EMISSION RATE (TPY)			40	

PROJECT-SPECIFIC NITROGEN OXIDE EMISSION CHANGES				
	EMISSIONS PER YEAR (TPY)			
SOURCE	2002	2003	2004	Future
Phosphoric Acid Plant	0.0	0.0	0.0	0.0
Superphosphoric Acid Plant	0.0	0.0	0.0	0.0
Boiler B-5	26.10	21.06	28.84	54.13
Thermal Oil Heaters	8.86	8.40	9.20	12.40
SPA Oxidizer	0.42	0.45	0.46	0.85
TOTAL (TPY)	35.38	29.93	38.50	67.38
DIFFERENCE (TPY) PAE = 34.2		34.72	33.16	
SIGNIFICANT EMISSION RATE (TPY)			40	

PROJECT-SPECIFIC CARBON MONOXIDE EMISSION CHANGES				
	EMISSIONS PER YEAR (TPY)			
SOURCE	2002	2003	2004	Future
Phosphoric Acid Plant	0.0	0.0	0.0	0.0
Superphosphoric Acid Plant	0.0	0.0	0.0	0.0
Boiler B-5	12.92	10.36	14.17	26.60
Thermal Oil Heaters	9.60	9.24	10.25	14.18
SPA Oxidizer	0.0	0.0	0.0	0.0
TOTAL (TPY)	22.50	19.60	24.42	40.77
DIFFERENCE (TPY)		19.72	15.76	
SIGNIFICANT EMISSION RATE (TPY)			100	

PROJECT-SPECIFIC PM10 EMISSION CHANGES				
	EMISSIONS PER YEAR (TPY)			
SOURCE	2002	2003	2004	Future
Phosphoric Acid Plant	3.39	3.31	3.62	3.62
Superphosphoric Acid Plant	1.06	1.13	1.18	2.14
Boiler B-5	3.43	2.77	3.79	4.42
Thermal Oil Heaters	0.88	0.84	0.93	1.28
SPA Oxidizer	0.0	0.0	0.0	0.0
Ore Storage and Transfer Fugitive Emissions	0.1	0.1	0.1	0.2
Gyp Stack Fugitive Emissions (including roadway dust)	0.4	0.6	0.6	0.7
TOTAL (TPY)	8.94	8.84	10.16	12.36
DIFFERENCE (TPY)		2.77	2.80	
SIGNIFICANT EMISSION RATE (TPY)			15	

PROJECT-SPECIFIC PM EMISSION CHANGES				
	EMISSIONS PER YEAR (TPY)			
SOURCE	2002	2003	2004	Future
Phosphoric Acid Plant	3.39	3.51	3.62	3.82
Superphosphoric Acid Plant	1.06	1.13	1.18	2.14
Boiler B-5	3.43	2.77	3.79	4.42
Thermal Oil Heaters	0.88	0.84	0.93	1.28
SPA Oxidizer	0.0	0.0	0.0	0.0
Ore Storage and Transfer Fugitive Emissions	0.2	0.3	0.3	0.4
Gyp Stack Fugitive Emissions (including roadway dust)	1.7	2.0	2.2	3.0
TOTAL (TPY)	10.69	10.48	11.95	14.86
DIFFERENCE (TPY)		4.02	3.52	
SIGNIFICANT EMISSION RATE (TPY)			25	

PROJECT-SPECIFIC FLUORIDE EMISSION CHANGES				
	EMISSIONS PER YEAR (TPY)			
SOURCE	2002	2003	2004	Future
Phosphoric Acid Plant	2.16	2.47	2.71	3.76
Superphosphoric Acid Plant	0.20	0.37	0.42	1.50
Boiler B-5	0.0	0.0	0.0	0.0
Thermal Oil Heaters CAE = 39.5	0.0	0.0	0.0	0.0
SPA Oxidizer	0.0	0.0	0.0	0.0
Gyp Stack Fugitives	35.5	35.5	35.5	36.5
TOTAL (TPY)	37.86	38.34	38.63	41.76
DIFFERENCE (TPY)		2.68	2.30	
SIGNIFICANT EMISSION RATE (TPY)			3	

Phosphoric Acid Plant

Operations

2002 P2O5 Input (tons/year)	2003 P2O5 Input (tons/year)	2004 P2O5 Input (tons/year)	Projected P2O5 Input (tons/year)
320,170.0	366,289.0	401,725.0	560,000

362,728.0 2002-2004 Average P2O5 production, tons/year

2002 P2O5 Input (hours/year)	2003 P2O5 Input (hours/year)	2004 P2O5 Input (hours/year)	Projected P2O5 Input (hours/year)
8,424.0	8,268.0	8,514.0	8,514

8,391.0 2002-2004 Average hours of operation

Fluoride Emission Factors

0.0135	lb Fluoride / ton P2O5 feed

Particulate Emission Factors

0.85	lb PM / hour
0.85	lb PM10 / hour

PM and PM10 emission rates based on 2003 source test results

Annual Emissions

Pollutant	2002 Annual Emissions (tons/year)	2003 Annual Emissions (tons/year)	2004 Annual Emissions (tons/year)	Projected Annual Emissions (tons/year)
PM	3.58	3.51	3.62	3.62
PM-10	3.58	3.51	3.62	3.62
Fluoride	2.16	2.47	2.71	3.78

Associated Fugitive Emission Sources - Phosphoric Acid Plant

Ore Transfer Point and Storage Emissions

Emission Factor = $k(0.0032)[(U/5)^{1.3}/(M/2)^{1.4}]$ AP-42 Section 13.2.4, January 1995

Where: k = particle size multiplier (0.74 for TSP & 0.35 for PM10)
U = mean wind speed (mph) = 3.4 mph (annual average of the non-calm wind speeds)
M = material moisture content (%) = 10.5% for ore and 18.1% for coal

Ore Transfer Emission Factors		
PM	0.0001407	lb/ton
PM10	0.0000666	lb/ton

	Ore Usage tpy
2002	1,087,947
2003	1,244,661
2004	1,365,073
Projected	1,902,896

Note: Ore usage is based on the ratio of 3.398 tons of ore per ton of phosphoric acid produced. This is the same ratio used in the November 1999 Sustaining Project PTC Application.

PM Emissions (tpy)	2002	2003	2004	Projected
Unload Ore to Storage Pile	0.077	0.088	0.096	0.134
Transfer Ore from Storage to Wash Plant	0.077	0.088	0.096	0.134
Ore Storage Pile	0.077	0.088	0.096	0.134

PM10 Emissions (tpy)	2002	2003	2004	Projected
Unload Ore to Storage Pile	0.036	0.041	0.045	0.063
Transfer Ore from Storage to Wash Plant	0.036	0.041	0.045	0.063
Ore Storage Pile	0.036	0.041	0.045	0.063

Total Ore Storage and Transfer Fugitive Emissions

Year	PM (tons/year)	PM10 (tons/year)
2002	0.23	0.11
2003	0.26	0.12
2004	0.29	0.14
Projected	0.40	0.19
Difference (2002:2003 - Projected	0.16	0.07
Difference (2003:2004 - Projected	0.13	0.06

Associated Fugitive Emission Sources - Phosphoric Acid Plant

Gyp Stack & Fugitive Road Dust

Backhoes

Emission Factor = $k(0.0032)[(U/5)^{1.3}/(M/2)^{1.4}]$ — AP-42 Section 13.2.4, January 1995

Where: k = particle size multiplier (0.74 for TSP & 0.35 for PM10)
U = mean wind speed (mph) = 3.4 mph (annual average of the non-calm wind speeds)
M = material moisture content (%) = 40%

PM EF = 0.0000216 lb/ton
PM10 EF = 0.0000102 lb/ton

Emissions	PM	PM10	Notes
2002	0.0019	0.0009	
2003	0.0021	0.0010	Estimated based on the ratio of annual ore use vs. projected ore use
2004	0.0023	0.0011	
Projected	0.0032	0.0015	At maximum production, the backhoes will move 1,154 tons of gyp per day, 5 days per week, 52 weeks per year.

Bulldozer & Compactor

Emission Factor = $k(s^a/M^b)$ — AP-42 Section 11.9, October 1998

Where: k, a, b is 5.7, 1.2, 1.3 for PM and 0.75, 1.5, 1.4 for PM10
s = silt content (%) = 5.1%
M = material moisture content (%) = 25%

PM EF = 0.613 lb/hr
PM10 EF = 0.095 lb/hr

Emissions	PM	PM10	Notes
2002	0.4558	0.0709	
2003	0.5215	0.0811	Estimated based on the ratio of annual ore use vs. projected ore use
2004	0.5719	0.0889	
Projected	0.7972	0.1239	At maximum production, both the dozer and compactor will operate 5 hours per day (one-half of a 10-hour shift), 5 days per week, 52 weeks per year.

Grader

Emission Factor = kS^a — AP-42 Section 11.9, October 1998

Where: k, a is 0.04, 2.5 for PM and 0.0308, 2 for PM10

S = speed (miles per hour) = 5 mph

PM EF = 1.118 lb/VMT

PM10 EF = 0.383 lb/VMT

An emissions reduction of 50% is assumed due to moisture and routine watering of the roadway.

Emissions	PM	PM10	Notes
2002	0.1330	0.0455	
2003	0.1521	0.0520	Estimated based on the ratio of annual ore use vs. projected ore use
2004	0.1668	0.0571	
Projected	0.2328	0.0796	At maximum production, the grader will travel 8 miles per week, operating 52 weeks per year.

Unpaved Roads - Pickup trucks

Emission Factor = $k(s/12)^a*(W/3)^b$ — AP-42 Section 13.2.2, December 2003

Where: k = empirical constant (4.9 for TSP & 1.5 for PM10)

a = empirical constant (0.7 for TSP & 0.9 for PM10)

b = empirical constant (0.45 for TSP & PM10)

s = surface material silt content (%) = 5.1 %

W = average weight (tons) of vehicles traveling = 3 tons

PM EF = 1.35

PM10 EF = 0.35

Note: the gypsum is routinely excavated at 40% moisture and compacted at 25% moisture. Watering is routinely added to the phosphogypsum stack roadways during construction season to control fugitive dust and to maintain proper moisture for compaction. A 50% reduction for this activity is applied to the emissions estimate.

Emissions	PM	PM10	Notes
2002	1.1235	0.2898	
2003	1.2854	0.3316	Estimated based on the ratio of annual ore use vs. projected ore use
2004	1.4097	0.3637	
Projected	1.9661	0.5069	At maximum production, two pickups each drive 4 miles per day on the dike, 365 days per year for a total of 2,920 VMT per year.

Gyp Stack Fugitive Fluoride Emissions

Emission Factor = **1.6** lb/acre/day 4th edition of AP-42 (Section 5.11)

Emissions	Gyp Stack Pond Area (acres)	Fluoride Emissions (tons/year)	Notes
2002	125	36.5	Gyp stack pond area is not affected by an increase in production rate. All emissions are calculated based on 365 days per year of operation.
2003	125	36.5	
2004	125	36.5	
Projected	125	36.5	

Total Fugitive Emissions associated with the Gyp Stack

Year	Fluride (tons/year)	PM (tons/year)	PM10 (tons/year)
2002	36.5	1.71	0.41
2003	36.5	1.98	0.47
2004	36.5	2.15	0.51
Projected	36.5	3.00	0.71
Difference (2002:2003 - Projected	**0.00**	**1.16**	**0.28**
Difference (2003:2004 - Projected	**0.00**	**0.94**	**0.22**

SPA Oxidation Process

Operations

2002 P_2O_5 Input (tons/year)	2003 P_2O_5 Input (tons/year)	2004 P_2O_5 Input (tons/year)	Projected P_2O_5 Input (tons/year)
170,557.3	182,536.6	189,635.4	345,000

186,086.0 2003-2004 Average P_2O_5 production, tons/year

Nitrogen Oxide Emission Factors

0.0049	lb Nitrogen Oxide / ton P_2O_5 feed, May 2002 source test

Annual Emissions

Pollutant	2002 Annual Emissions (tons/year)	2003 Annual Emissions (tons/year)	2004 Annual Emissions (tons/year)	Projected Annual Emissions (tons/year)
Nitrogen Oxides	0.42	0.45	0.46	0.85

Boiler B-5

Operations

2002 Heat Input (MMBtu/year)	2003 Heat Input (MMBtu/year)	2004 Heat Input (MMBtu/year)	Projected Heat Input (MMBtu/year)
903,127	729,566	997,766	1,872,888

2002 Fuel Input (MMscf/year)	2003 Fuel Input (MMscf/year)	2004 Fuel Input (MMscf/year)	Projected Fuel Input (MMscf/year)
903.127	729.566	997.766	1,872.888

Conversion Factors

45.9 therms, heat input required for each ton of P_2O_5 feed that goes to SPA plant
100,000 btu per therm
1000 btu per scf gas

Emission Factors

Pollutant	Emission Factor[a]
NOx	0.0578 lb/MMBtu
CO	0.0284 lb/MMBtu
SO2	0.60 lb/MMscf
PM	7.60 lb/MMscf
PM-10	7.60 lb/MMscf
VOC	0.0013 lb/MMBtu

Nox, CO, VOC emission factors from June 2005 source test
All other factors from AP-42 Natural Gas External Combustion

Annual Emissions

Pollutant	2002 Annual Emissions (tons/year)	2003 Annual Emissions (tons/year)	2004 Annual Emissions (tons/year)	Projected Annual Emissions (tons/year)	Existing Permit Limits (pounds/hour)	Existing Permit Limits (tons/year)
NOx	26.10	21.08	28.84	54.13	18.84	70.71
CO	12.82	10.36	14.17	26.60	8.42	35.4
SO2	0.27	0.22	0.30	0.53	0.13	0.53
PM	3.43	2.77	3.79	4.42	1.05	4.42
PM-10	3.43	2.77	3.79	4.42	1.05	4.42
VOC	0.59	0.47	0.65	1.22	0.36	1.5

Thermal Oil Heaters

Heater 1 Operations

2002 Fuel Input (MMscf/year)	2003 Fuel Input (MMscf/year)	2004 Fuel Input (MMscf/year)	Projected Fuel Input (MMscf/year)
106.366	104.180	120.341	179.054

Heater 2 Operations

2002 Fuel Input (MMscf/year)	2003 Fuel Input (MMscf/year)	2004 Fuel Input (MMscf/year)	Projected Fuel Input (MMscf/year)
124.016	115.645	123.799	158.556

Heater fuel use projections based on maximum heat input capacities identified in 6-30-05 fax from M. Johnson

Emission Factors

Pollutant	Emission Factor (lb/MMscf)[a]
NOx (Heater 1)	50.0
NOx (Heater 2)	100.0
CO	84.0
SO2	0.6
PM	7.6
PM-10	7.6
VOC	5.5

All factors from AP-42 Natural Gas External Combustion

Heater 1 is equipped with Low NOx burners, Heater 2 is not, per 6-30-05 email from M. Johnson

Annual Emissions

Pollutant	2002 Annual Emissions (tons/year)	2003 Annual Emissions (tons/year)	2004 Annual Emissions (tons/year)	Projected Annual Emissions (tons/year)
NOx	8.86	8.40	9.20	12.40
CO	9.68	9.24	10.25	14.18
SO2	0.07	0.07	0.07	0.10
PM	0.88	0.84	0.93	1.28
PM-10	0.88	0.84	0.93	1.28
VOC	0.63	0.61	0.67	0.93

Thermal Oil Heaters - Toxic Air Pollutants

Heater 1 Operations

2002 Fuel Input (MMscf/year)	2003 Fuel Input (MMscf/year)	2004 Fuel Input (MMscf/year)	Projected Fuel Input (MMscf/year)
106.366	104.180	120.341	179.054

Heater 2 Operations

2002 Fuel Input (MMscf/year)	2003 Fuel Input (MMscf/year)	2004 Fuel Input (MMscf/year)	Projected Fuel Input (MMscf/year)
124.016	116.846	123.799	158.556

Heater fuel use projections based on maximum heat input capacities identified in 6-30-05 fax from M. Johnson

Emission Factors

Pollutant	CAS No.	Emission Factor (lb/MMscf)[a]
Lead		0.0005
N_2O (Heater 1 - low NO_X)		0.64
N_2O (Heater 2)		2.2
Methane		2.3
2-Methylnaphthalene	91-57-6	2.4E-05
3-Methylchloranthrene	56-49-5	1.8E-06
7,12-Dimethylebenz(a)anthracene		1.6E-05
Acenaphthene	83-32-9	1.8E-06
Acenaphthylene	203-96-8	1.8E-06
Anthracene	120-12-7	2.4E-06
Benz(a)anthracene	56-55-3	1.8E-06
Benzene	71-43-2	2.1E-03
Benzo(a)pyrene	50-32-8	1.2E-06
Benzo(b)fluoranthene	205-99-2	1.8E-06
Benzo(g,h,i)perylene	191-24-2	1.2E-06
Benzo(k)fluoranthene	205-82-3	1.8E-06
Butane	106-97-8	2.1E+00
Chrysene	218-01-9	1.8E-06
Dibenzo(a,h)anthracene	53-70-3	1.2E-06
Dichlorobenzene	25321-22-6	1.2E-03
Ethane	74-84-0	3.1E+00
Fluoranthene	206-44-0	3.0E-06
Fluorene	86-73-7	2.8E-06

Emission Factors - Continued

Pollutant	CAS No.	Emission Factor (lb/MMscf)[a]
Formaldehyde	50-00-0	7.5E-02
Hexane	110-54-3	1.8E+00
Indeno(1,2,3-cd)pyrene	193-39-5	1.8E-06
Naphthalene	91-20-3	6.1E-04
Pentane	109-66-0	2.6E+00
Phenanathrene	85-01-8	1.7E-05
Propane	74-98-6	1.6E+00
Pyrene	129-00-0	5.0E-06
Toluene	108-88-3	3.4E-03
Arsenic	7440-38-2	2.0E-04
Barium	7440-39-3	4.4E-03
Beryllium	7440-41-7	1.2E-05
Cadmium	7440-43-9	1.1E-03
Chromium	7440-47-3	1.4E-03
Cobalt	7440-48-4	8.4E-05
Copper	7440-50-8	8.5E-04
Manganese	7439-96-5	3.8E-04
Mercury	7439-97-6	2.6E-04
Molybdenum	7439-98-7	1.1E-03
Nickel	7440-02-0	2.1E-03
Selenium	7782-49-2	2.4E-05
Vandium	7440-62-2	2.3E-03
Zinc	7440-66-6	2.9E-02

All factors from AP-42 Natural Gas External Combustion, Section 1.4, July 1998

Heater 1 is equipped with Low NOx burners, Heater 2 is not, per 6-30-05 email from M. Johnson

Annual Emissions

Pollutant	2002 Annual Emissions (pounds/year)	2003 Annual Emissions (pounds/year)	2004 Annual Emissions (pounds/year)	Projected Annual Emissions (pounds/year)
Lead	0.12	0.11	0.12	0.17
N_2O	340.91	321.54	349.38	493.42
Methane	529.88	506.06	561.52	776.50
2-Methylnaphthalene	5.5E-03	5.3E-03	5.9E-03	8.1E-03
3-Methylchloranthrene	4.1E-04	4.0E-04	4.4E-04	6.1E-04
7,12-Dimethylebenz(a)anthracene	3.7E-03	3.5E-03	3.9E-03	5.4E-03
Acenaphthene	4.1E-04	4.0E-04	4.4E-04	6.1E-04
Acenaphthylene	4.1E-04	4.0E-04	4.4E-04	6.1E-04

Annual Emissions - Continued

Pollutant	2002 Annual Emissions (pounds/year)	2003 Annual Emissions (pounds/year)	2004 Annual Emissions (pounds/year)	Projected Annual Emissions (pounds/year)
Anthracene	5.5E-04	5.3E-04	5.9E-04	8.1E-04
Benz(a)anthracene	4.1E-04	4.0E-04	4.4E-04	6.1E-04
Benzene	4.8E-01	4.6E-01	5.1E-01	7.1E-01
Benzo(a)pyrene	2.8E-04	2.6E-04	2.9E-04	4.1E-04
Benzo(b)fluoranthene	4.1E-04	4.0E-04	4.4E-04	6.1E-04
Benzo(g,h,i)perylene	2.8E-04	2.8E-04	2.9E-04	4.1E-04
Benzo(k)fluoranthene	4.1E-04	4.0E-04	4.4E-04	6.1E-04
Butane	483.80	462.05	512.69	708.98
Chrysene	4.1E-04	4.0E-04	4.4E-04	6.1E-04
Dibenzo(a,h)anthracene	2.8E-04	2.6E-04	2.8E-04	4.1E-04
Dichlorobenzene	2.8E-01	2.6E-01	2.9E-01	4.1E-01
Ethane	714.19	682.06	756.83	1046.59
Fluoranthene	6.9E-04	6.6E-04	7.3E-04	1.0E-03
Fluorene	6.5E-04	6.2E-04	6.8E-04	9.5E-04
Formaldehyde	17.28	16.50	18.31	25.32
Hexane	414.69	396.05	439.45	607.70
Indeno(1,2,3-cd)pyrene	4.1E-04	4.0E-04	4.4E-04	6.1E-04
Naphthalene	1.4E-01	1.3E-01	1.5E-01	2.1E-01
Pentane	598.99	572.07	634.76	877.79
Phenanathrene	3.9E-03	3.7E-03	4.2E-03	5.7E-03
Propane	368.61	352.04	390.62	540.18
Pyrene	1.2E-03	1.1E-03	1.2E-03	1.7E-03
Toluene	0.78	0.75	0.83	1.15
Arsenic	4.6E-02	4.4E-02	4.9E-02	6.8E-02
Barium	1.01	0.97	1.07	1.49
Beryllium	2.8E-03	2.6E-03	2.9E-03	4.1E-03
Cadmium	2.5E-01	2.4E-01	2.7E-01	3.7E-01
Chromium	3.2E-01	3.1E-01	3.4E-01	4.7E-01
Cobalt	1.9E-02	1.8E-02	2.1E-02	2.8E-02
Copper	2.0E-01	1.9E-01	2.1E-01	2.9E-01
Manganese	8.8E-02	8.4E-02	9.3E-02	1.3E-01
Mercury	6.0E-02	5.7E-02	6.3E-02	8.8E-02
Molybdenum	2.5E-01	2.4E-01	2.7E-01	3.7E-01
Nickel	4.8E-01	4.6E-01	5.1E-01	7.1E-01
Selenium	5.5E-03	5.3E-03	5.9E-03	8.1E-03
Vandium	5.3E-01	5.1E-01	5.6E-01	7.8E-01
Zinc	6.68	6.38	7.08	9.79

Emission Increase

Pollutant	Projected Emission Increase (pounds/year)	Projected Emission Increase (pounds/hr)	EL (pounds/hr)	Above EL?
Lead	0.05	6.02E-06	–	N/A
N_2O	127.96	1.46E-02	–	N/A
Methane	242.71	2.77E-02	–	N/A
2-Methylnaphthalene	2.5E-03	2.89E-07	–	N/A
3-Methylchloranthrene	1.9E-04	2.17E-08	2.5E-06	No
7,12-Dimethylebenz(a)anthracene	1.7E-03	1.93E-07	–	N/A
Acenaphthene	1.9E-04	2.17E-08	–	N/A
Acenaphthylene	1.9E-04	2.17E-08	–	N/A
Anthracene	2.5E-04	2.89E-08	–	N/A
Benz(a)anthracene	1.9E-04	2.17E-08	–	N/A
Benzene	2.2E-01	2.53E-05	8.0E-04	No
Benzo(a)pyrene	1.3E-04	1.45E-08	2.0E-06	No
Benzo(b)fluoranthene	1.9E-04	2.17E-08	–	N/A
Benzo(g,h,i)perylene	1.3E-04	1.45E-08	–	N/A
Benzo(k)fluoranthene	1.9E-04	2.17E-08	–	N/A
Butane	221.61	2.53E-02	–	N/A
Chrysene	1.9E-04	2.17E-08	–	N/A
Dibenzo(a,h)anthracene	1.3E-04	1.45E-08	–	N/A
Dichlorobenzene	1.3E-01	1.45E-05	–	N/A
Ethane	327.14	3.73E-02	–	N/A
Fluoranthene	3.2E-04	3.61E-08	–	N/A
Fluorene	3.0E-04	3.37E-08	–	N/A
Formaldehyde	7.91	9.03E-04	5.1E-04	Yes
Hexane	189.95	2.17E-02	12	No
Indeno(1,2,3-cd)pyrene	1.9E-04	2.17E-08	–	N/A
Naphthalene	6.4E-02	7.35E-06	3.33	No
Pentane	274.37	3.13E-02	118	No
Phenanathrene	1.8E-03	2.05E-07	–	N/A
Propane	168.84	1.93E-02	–	N/A
Pyrene	5.3E-04	6.02E-08	–	N/A
Toluene	3.6E-01	4.10E-05	25	No
Arsenic	2.1E-02	2.41E-06	1.5E-06	Yes
Barium	0.46	5.30E-05	3.3E-02	No
Beryllium	1.3E-03	1.45E-07	2.8E-05	No
Cadmium	1.2E-01	1.33E-05	3.7E-06	Yes
Chromium	1.5E-01	1.69E-05	5.6E-07	Yes
Cobalt	8.9E-03	1.01E-06	3.3E-03	No
Copper	9.0E-02	1.02E-05	6.7E-02	No

Emission Increase - Continued

Pollutant	Projected Emission Increase (pounds/year)	Projected Emission Increase (pounds/hr)	EL (pounds/hr)	Above EL?
Manganese	4.0E-02	4.58E-06	6.7E-02	No
Mercury	2.7E-02	3.13E-06	3.0E-03	No
Molybdenum	1.2E-01	1.33E-05	3.3E-01	No
Nickel	2.2E-01	2.53E-05	2.7E-05	No
Selenium	2.5E-03	2.89E-07	1.3E-02	No
Vandium	2.4E-01	2.77E-05	3.0E-03	No
Zinc	3.06	3.49E-04	6.7E-01	No

SPA Production

Operations

2002 P2O5 Input (tons/year)	2003 P2O5 Input (tons/year)	2004 P2O5 Input (tons/year)	Projected P2O5 Input (tons/year)
170,557.3	182,536.6	189,635.4	345,000

186,086.0 2003-2004 Average P2O5 production, tons/year

Fluoride Emission Factors

0.0044	lb Fluoride / ton P2O5 feed, 2004 source test
0.004	lb Fluoride / ton P2O5 feed, 2003 source test
0.0024	lb Fluoride / ton P2O5 feed, 2002 source test
0.0087	lb Fluoride / ton P2O5 feed, Future PTE

Particulate Emission Factors

0.0124	lb PM / ton P2O5 feed, 2004 source test
0.0124	lb PM / ton P2O5 feed, 2003 source test
0.0124	lb PM / ton P2O5 feed, 2002 source test
0.0124	lb PM / ton P2O5 feed, Projected

Annual Emissions

Pollutant	2002 Annual Emissions (tons/year)	2003 Annual Emissions (tons/year)	2004 Annual Emissions (tons/year)	Projected Annual Emissions (tons/year)
PM	1.06	1.13	1.18	2.14
PM-10	1.06	1.13	1.18	2.14
Fluoride	0.20	0.37	0.42	1.50

Agrium

Agrium Conda Phosphate Operations*
3010 Conda Road
Soda Springs, ID 83276
Tel: 208-547-4381
Fax: 208-547-2550

October 18, 2005

EN-05-119

CERTIFIED MAIL # 7002 2030 0006 3195 6976

RECEIVED

OCT 2 1 2005

Air Quality Permit Compliance
Department of Environmental Quality
1410 North Hilton
Boise, ID 83706-1255
Attn: Ken Hanna

RE: SPA: Additional Information Report

Dear Mr. Hanna,

Attached is our response for the additional information request concerning our (PTC) SPA process line throughput increase: The SPA production increase based on our internal and external consultant (Geomatrix) review considered higher firing rates in our B-5 Boiler and concluded that emission increases would not exceed the Significant Emission Rates that trigger PSD. We request that the allowable fuel consumption limit in PTC No. 029-00003 and the Tier 1 permit be updated to reflect the boiler name plate capacity of 1,873 MMscf/year.
The additional information you requested is in the attachment 1 dated October 13, 2005 memo to James Cagle. We believe all the attachment 1 information formed after reasonable inquiry, that statements and information are true, accurate, and complete."

If you have questions concerning this report, please contact James Cagle, Risk Manager, at (208) 547-4381 extension 213.

Sincerely,

Charles H. Ross
General Manager

Attachment: (1) Response EN-05-119

CHR/jc

* A Registered Name of Nu-West Industries, Inc.

ATTACHMENT
1 -EN-05-119

October 13, 2005

Mr. James Cagle
Agrium U.S. Inc.
Conda Phosphate Operations
3010 Conda Road
Soda Springs, Idaho 83276

Re: IDEQ Data Request Response
Agrium Superphosphoric Acid Production Limit

Dear Mr. Cagle:

On June 20, 2005, Agrium Conda Phosphate Operations (CPO) submitted a PSD applicability analysis to the Department of Environmental Quality for a proposed increase in CPO's superphosphoric acid (SPA) production limit. This letter provides information responding to Ken Hanna's subsequent information request, dated September 12, 2005. The responses to his requests are listed below the corresponding request.

Request #1

The projected heat input for Boiler B-5 listed on pg 4 of the July 1, 2005 PSD analysis refers to 1,872.888 MMscf/yr but Tier I Permit Condition 5.6 limits this to 1,768 MMscf/yr and the projected actual emissions rates appear to fall within the permitted fuel limit. This doesn't appear to by any problem, but please let us know if the emission limits and allowable fuel consumption limit in PTC No. 029-00003, issued 7/7/95, for Boiler B5 should also be revised as part of this project. Additional Fees may apply.

Response #1

The 213.8 MMBtu/hr rating for Boiler B-5 corresponds to a maximum annual fuel input of 1873 MMscf (assuming 1000 Btu/scf). Our calculations of emission increases resulting from the proposed SPA production increase considered this higher firing rate and concluded that emission increases would not exceed the Significant Emission Rates that trigger PSD. Therefore, Agrium should request that the allowable fuel consumption limit in PTC No. 029-00003 and the Tier I permit be updated to reflect the boiler name plate capacity of 1,873 MMscf/year.

Request #2

Additional details are needed to demonstrate compliance with the TAP requirements under IDAPA 58.01.01.210 for the project's emissions increase, as follows:

- *A TAP emissions inventory for the Thermal Oil Heaters.*

19203 36th Avenue West, Suite 101 Lynnwood, Washington 98036-5772 | Tel 425.921.4000 Fax 425.921.4040 | www.geomatrix.com

- *For those TAPs that do not exceed the EL, state that IDAPA 58.01.01.210.05 is met for those TAPs.*
- *Identify each TAP that exceeds the EL.*
- *For each TAP that exceeds the EL, show how IDAPA 58.01.01.210. 06, 07, or 08 is met.*

Response #2

Geomatrix prepared a detailed emission inventory for the increase in toxic air pollutants (TAPs) emitted from proposed increased utilization of the two hot oil heaters. The emission increase of each TAP was compared to its respective screening emission level (EL) to determine if any further analysis is necessary. We determined that only four pollutants (formaldehyde, arsenic, cadmium, and chromium) would have an increase in emissions exceeding their EL. Consequently, the requirements contained within IDAPA 58.01.01.210.05 are met for all TAPs except for the four listed TAPs. This detailed inventory is presented in Attachment 1.

Geomatrix used the conservative dispersion model SCREEN3 to conduct an ambient air quality analysis of the four TAPS that exceeded their ELs. Since the hot oil heaters have identical stack parameters and are located very close to each other, one stack was used in the SCREEN3 model to represent both stacks. Emissions from both hot oil heaters were assumed to be emitted from this representative stack. This is a conservative assumption. SCREEN3 was run using the following inputs:

Rural conditions: Geomatrix used the default options for rural conditions. Within three kilometers of the facility, a large portion of the land is undeveloped or rural. Geomatrix estimated the population density surrounding the facility using the Auer Land Use method, and found that greater than 50% of the land within three kilometers of the facility is undeveloped. Therefore, the rural dispersion option was chosen.

Ambient air boundary: A plot plan of the facility is included within Attachment 2 which displays the site boundary and reflects property of the Agrium Facility. This boundary is considered the ambient air boundary. The shortest distance between the boundary and the hot oil heater stacks is approximately 1500 feet (457 meters).

Meteorological data: Geomatrix utilized the full meteorology option available within SCREEN3. Under this option, SCREEN3 examines a range of stability classes and wind speeds to identify the worst-case meteorological condition out of the 54 possible combinations.

Emissions: Since the maximum ambient air concentration calculated within the SCREEN3 dispersion model is linearly related to the emission rate, a unit emission rate of 1 gram per second was evaluated with the model. The resulting maximum ambient air concentration was then multiplied by each pollutant emission rate to calculate each pollutant's maximum concentration.

Ground level concentrations are heavily influenced by release characteristics including stack parameters. Geomatrix used the stack parameters shown in Table 1 in our modeling analysis.

TABLE 1

STACK PARAMETERS
Agrium Conda Operations
Soda Springs, Idaho

HEIGHT METERS (FT)	TEMPERATURE K (°F)	FLOW RATE ACFM	DIAMETER METERS (INCHES)
6.7 (22.0)	561 (550)	9,425	0.76 (30)

Results: The maximum one-hour average ambient concentration for an emission rate of 1 gram per second was determined to be 41.68 micrograms per cubic meter (μg/m^3). This one-hour average concentration was then converted into an annual average using the persistence factor of 0.125 in order to compare model results to the applicable ambient concentration for carcinogens (AACC) standards. Table 2 details the pollutant specific modeled concentrations along with the applicable standard for each pollutant.

TABLE 2

SCREEN3 DISPERSION MODELING ANALYSIS RESULTS
Agrium Conda Operations
Soda Springs, Idaho

Pollutant	Emission Rate lb/hr	EL lb/hr	Emission Rate g/s	Max off-site concentration μg/m^3	AACC Standard μg/m^3	Below AACC?
Formaldehyde	9.03E-04	5.1E-04	1.14 E-04	5.93 E-04	7.7 E-02	Yes
Arsenic	2.41E-06	1.5E-06	3.04 E-07	1.58 E-06	2.3 E-04	Yes
Cadmium	1.33E-05	3.7E-06	1.68 E-06	8.73 E-06	5.6 E-04	Yes
Chromium	1.69E-05	5.6E-07	2.13 E-06	1.11 E-05	8.3 E-05	Yes

SCREEN3 was also utilized to model the complex terrain located to the east of the facility. None of the elevated terrain modeled concentrations are above the maximum off-site concentration modeled presented in Table 2.

This modeling analysis indicates that the increased utilization of the hot oil heaters at the Agrium Conda Operations will not exceed any AACC. Thus, the production increase would comply with IDAPA 58.01.01.210.06. SCREEN3 output files are provided as Attachment 2.

Request #3

The analysis under 52.21(a)(2)(iv) needs to include all emission units included in this "project"; in particular, the fugitive emissions sources associated with the Phosphoric Acid Plant should be added to the "PSD Applicability Analysis for the SPA Process Line Throughput Increase, July 1, 2005" (i.e., Gyp Stack, Ore Unloading and Storage, Fugitive Road Dust, and Ore Plies). See 52.219b)(41)(ii)(b) and 52.21(b)(48)(ii)(a).

Response #3

Fugitive emissions associated with the Phosphoric Acid Plant have been incorporated into the PSD applicability analysis. The sources of associated fugitive emissions added in this update include 1) the unloading, transfer and storage of ore, and 2) gyp stack activities, including emissions of fugitive road dust. The updated PSD applicability analysis still shows that the proposed modifications to the Agrium CPO do not exceed any PSD significant emission rates. The updated analysis is included as Attachment 3 to this response letter.

Request #4

The PTC processing fee will probably need to be revised. Right now it looks like this fee would be $2,500.00 for a modification with an increase of 1-10 TPY (see IDAPA 58.01.01.225).

Response #4

We understand Agrium will coordinate with IDEQ regarding additional fees.

If you have any questions regarding information in this letter, or if you need any additional information, please do not hesitate to contact me or Rafe Christopherson at 425.921.4000.

Sincerely,
Geomatrix Consultants, Inc.

for

Eric Hansen
Senior Consultant

Attachments: Attachment 1: Heater TAP Analysis
Attachment 2: Heater TAP Modeling Output Files
Attachment 3: Updated PSD Applicability Analysis

cc: Rafe Christopherson, Geomatrix Consultants

Attachment 1

Heater TAP Analysis

Thermal Oil Heaters - TAP Emissions Analysis

Heater 1 Operations

2002 Fuel Input (MMscf/year)	2003 Fuel Input (MMscf/year)	2004 Fuel Input (MMscf/year)	Projected Fuel Input (MMscf/year)
106.366	104.180	120.341	179.984

Heater 2 Operations

2002 Fuel Input (MMscf/year)	2003 Fuel Input (MMscf/year)	2004 Fuel Input (MMscf/year)	Projected Fuel Input (MMscf/year)
124.016	115.845	123.799	158.558

Heater fuel use projections based on maximum heat input capacities identified in 6-30-05 fax from M. Johnson

Emission Factors

Pollutant	CAS No.	Emission Factor (lb/MMscf)[a]
Lead		0.0005
N_2O (Heater 1 - low NO_x)		0.64
N_2O (Heater 2)		2.2
Methane		2.3
2-Methylnaphthalene	91-57-6	2.4E-05
3-Methylchloranthrene	56-49-5	1.8E-06
7,12-Dimethylebenz(a)anthracene		1.6E-05
Acenaphthene	83-32-9	1.8E-06
Acenaphthylene	203-96-8	1.8E-06
Anthracene	120-12-7	2.4E-06
Benz(a)anthracene	56-55-3	1.8E-06
Benzene	71-43-2	2.1E-03
Benzo(a)pyrene	50-32-8	1.2E-06
Benzo(b)fluoranthene	205-99-2	1.8E-06
Benzo(g,h,i)perylene	191-24-2	1.2E-06
Benzo(k)fluoranthene	205-82-3	1.8E-06
Butane	106-97-8	2.1E+00
Chrysene	218-01-9	1.8E-06
Dibenzo(a,h)anthracene	53-70-3	1.2E-06
Dichlorobenzene	25321-22-6	1.2E-03
Ethane	74-84-0	3.1E+00
Fluoranthene	206-44-0	3.0E-06
Fluorene	86-73-7	2.8E-06
Formaldehyde	50-00-0	7.5E-02
Hexane	110-54-3	1.8E+00
Indeno(1,2,3-cd)pyrene	193-39-5	1.8E-06
Naphthalene	91-20-3	6.1E-04
Pentane	109-66-0	2.6E+00
Phenanathrene	85-01-8	1.7E-05
Propane	74-98-6	1.6E+00
Pyrene	129-00-0	5.0E-06
Toluene	108-88-3	3.4E-03
Arsenic	7440-38-2	2.0E-04
Barium	7440-39-3	4.4E-03
Beryllium	7440-41-7	1.2E-05
Cadmium	7440-43-9	1.1E-03
Chromium	7440-47-3	1.4E-03
Cobalt	7440-48-4	8.4E-05
Copper	7440-50-8	8.5E-04
Manganese	7439-96-5	3.8E-04
Mercury	7439-97-6	2.6E-04
Molybdenum	7439-98-7	1.1E-03
Nickel	7440-02-0	2.1E-03
Selenium	7782-49-2	2.4E-05
Vandium	7440-62-2	2.3E-03
Zinc	7440-66-6	2.9E-02

All factors from AP-42 Natural Gas External Combustion, Section 1.4, July 1998

Annual Emissions

Pollutant	2002 Annual Emissions (pounds/year)	2003 Annual Emissions (pounds/year)	2004 Annual Emissions (pounds/year)	Projected Annual Emissions (pounds/year)
Lead	0.12	0.11	0.12	0.17
N_2O	340.91	321.54	349.38	483.42
Methane	529.88	506.08	561.52	776.50
2-Methylnaphthalene	5.5E-03	5.3E-03	5.9E-03	8.1E-03
3-Methylchloranthrene	4.1E-04	4.0E-04	4.4E-04	6.1E-04
7,12-Dimethylbenz(a)anthracene	3.7E-03	3.5E-03	3.9E-03	5.4E-03
Acenaphthene	4.1E-04	4.0E-04	4.4E-04	6.1E-04
Acenaphthylene	4.1E-04	4.0E-04	4.4E-04	6.1E-04
Anthracene	5.5E-04	5.3E-04	5.9E-04	8.1E-04
Benz(a)anthracene	4.1E-04	4.0E-04	4.4E-04	6.1E-04
Benzene	4.8E-01	4.6E-01	5.1E-01	7.1E-01
Benzo(a)pyrene	2.8E-04	2.6E-04	2.9E-04	4.1E-04
Benzo(b)fluoranthene	4.1E-04	4.0E-04	4.4E-04	6.1E-04
Benzo(g,h,i)perylene	2.8E-04	2.6E-04	2.9E-04	4.1E-04
Benzo(k)fluoranthene	4.1E-04	4.0E-04	4.4E-04	6.1E-04
Butane	483.50	462.05	512.69	708.98
Chrysene	4.1E-04	4.0E-04	4.4E-04	6.1E-04
Dibenzo(a,h)anthracene	2.8E-04	2.6E-04	2.9E-04	4.1E-04
Dichlorobenzene	2.8E-01	2.6E-01	2.9E-01	4.1E-01
Ethane	714.19	682.08	756.85	1046.58
Fluoranthene	6.9E-04	6.6E-04	7.3E-04	1.0E-03
Fluorene	6.5E-04	6.2E-04	6.8E-04	9.5E-04
Formaldehyde	17.29	16.50	18.31	25.32
Hexane	414.89	396.05	439.45	607.70
Indeno(1,2,3-cd)pyrene	4.1E-04	4.0E-04	4.4E-04	6.1E-04
Naphthalene	1.4E-01	1.3E-01	1.5E-01	2.1E-01
Pentane	598.98	572.07	634.76	877.79
Phenanathrene	3.9E-03	3.7E-03	4.2E-03	5.7E-03
Propane	368.61	352.04	390.62	540.18
Pyrene	1.2E-03	1.1E-03	1.2E-03	1.7E-03
Toluene	0.78	0.75	0.83	1.15
Arsenic	4.6E-02	4.4E-02	4.9E-02	6.8E-02
Barium	1.01	0.97	1.07	1.49
Beryllium	2.8E-03	2.6E-03	2.9E-03	4.1E-03
Cadmium	2.5E-01	2.4E-01	2.7E-01	3.7E-01
Chromium	3.2E-01	3.1E-01	3.4E-01	4.7E-01
Cobalt	1.9E-02	1.8E-02	2.1E-02	2.8E-02
Copper	2.0E-01	1.9E-01	2.1E-01	2.9E-01
Manganese	8.8E-02	8.4E-02	9.3E-02	1.3E-01
Mercury	6.0E-02	5.7E-02	6.3E-02	8.8E-02
Molybdenum	2.5E-01	2.4E-01	2.7E-01	3.7E-01
Nickel	4.8E-01	4.6E-01	5.1E-01	7.1E-01
Selenium	5.5E-03	5.3E-03	5.9E-03	8.1E-03
Vandium	5.3E-01	5.1E-01	5.6E-01	7.8E-01
Zinc	6.88	6.38	7.08	9.79

Emission Increase

Pollutant	Projected Emission Increase (pounds/year)	Projected Emission Increase (pounds/hr)	EL (pounds/hr)	Above EL?
Lead	0.06	6.02E-06	–	N/A
N_2O	127.98	1.46E-02	–	N/A
Methane	242.71	2.77E-02	–	N/A
2-Methylnaphthalene	2.5E-03	2.89E-07	–	N/A
3-Methylchloranthrene	1.9E-04	2.17E-08	2.5E-06	No
7,12-Dimethylbenz(a)anthracene	1.7E-03	1.93E-07	–	N/A
Acenaphthene	1.9E-04	2.17E-08	–	N/A
Acenaphthylene	1.9E-04	2.17E-08	–	N/A
Anthracene	2.5E-04	2.89E-08	–	N/A
Benz(a)anthracene	1.9E-04	2.17E-08	–	N/A
Benzene	2.2E-01	2.53E-05	8.0E-04	No
Benzo(a)pyrene	1.3E-04	1.45E-08	2.0E-06	No
Benzo(b)fluoranthene	1.9E-04	2.17E-08	–	N/A
Benzo(g,h,i)perylene	1.3E-04	1.45E-08	–	N/A
Benzo(k)fluoranthene	1.9E-04	2.17E-08	–	N/A
Butane	221.61	2.53E-02	–	N/A
Chrysene	1.9E-04	2.17E-08	–	N/A
Dibenzo(a,h)anthracene	1.3E-04	1.45E-08	–	N/A
Dichlorobenzene	1.3E-01	1.45E-05	–	N/A
Ethane	327.14	3.73E-02	–	N/A
Fluoranthene	3.2E-04	3.61E-08	–	N/A
Fluorene	3.0E-04	3.37E-08	–	N/A
Formaldehyde	7.91	9.03E-04	5.1E-04	Yes
Hexane	189.85	2.17E-02	12	No
Indeno(1,2,3-cd)pyrene	1.9E-04	2.17E-08	–	N/A
Naphthalene	6.4E-02	7.35E-06	3.33	No
Pentane	274.37	3.13E-02	118	No
Phenanathrene	1.8E-03	2.05E-07	–	N/A
Propane	168.84	1.93E-02	–	N/A
Pyrene	5.3E-04	6.02E-08	–	N/A
Toluene	3.6E-01	4.10E-05	25	No
Arsenic	2.1E-02	2.41E-06	1.5E-06	Yes
Barium	0.46	5.30E-05	3.3E-02	No
Beryllium	1.3E-03	1.45E-07	2.8E-05	No
Cadmium	1.2E-01	1.33E-05	3.7E-06	Yes
Chromium	1.5E-01	1.69E-05	5.6E-07	Yes
Cobalt	8.9E-03	1.01E-06	3.3E-03	No
Copper	9.0E-02	1.02E-05	6.7E-02	No
Manganese	4.0E-02	4.58E-06	6.7E-02	No
Mercury	2.7E-02	3.13E-06	3.0E-03	No
Molybdenum	1.2E-01	1.33E-05	3.3E-01	No
Nickel	2.2E-01	2.53E-05	2.7E-05	No
Selenium	2.5E-03	2.89E-07	1.3E-02	No
Vandium	2.4E-01	2.77E-05	3.0E-03	No
Zinc	3.08	3.40E-04	6.7E-01	No

Appendix B

Modeling

SCREEN3 Model Inputs

Parameter	Heater #1 Stack	Heater #2 Stack	Input - Worst-case Parameter
Stack height	25 feet, 4 inches	22 feet, 0 inches	6.7 meters (22 feet, 0 inches)
Diameter	2.50 ft	2.50 ft	0.76 meters (2.5 feet)
Exhaust Temp	550 F	650 F	561 K (550F)
Exit Flow Rate	9666 acfm	9425 acfm	9425 acfm

SCREEN3 Modeling Results

Maximum Concentration (μg/m³)	
41.68	max 1-hr @ 1gram per second emission rate
37.512	3-hr (0.9 * 1-hr)
29.176	8-hr (0.7 * 1-hr)
16.672	24-hr (0.4 * 1-hr)
5.21	Annual (0.125 * 1-hr)

Pollutant	Averaging Period	Emission Rate lb/hr	Emission Rate g/s	Max off-site concentration μg/m³	Standard μg/m³	Below MSL Standard?
Formaldehyde	Annual	9.03E-04	1.14E-04	5.93E-04	7.70E-02	Yes
Arsenic	Annual	2.41E-06	3.04E-07	1.58E-06	2.30E-04	Yes
Cadmium	Annual	1.33E-05	1.68E-06	8.73E-06	5.60E-04	Yes
Chromium +2,+3 natural gas	Annual	1.69E-05	2.13E-06	1.11E-05	~~8.30E-05~~ 25 ug/m3 for Cr +2,3 Ken K. 3-10-06	Yes

```
                                                              10/06/05
                                                              11:22:08
 ***  SCREEN3 MODEL RUN  ***
 *** VERSION DATED 96043 ***

Agrium SPA Project - Hot Oil Heater TAPs Modeling - Complex Terrain Included

COMPLEX TERRAIN INPUTS:
   SOURCE TYPE             =        POINT
   EMISSION RATE (G/S)     =      1.00000
   STACK HT (M)            =       6.7000
   STACK DIAMETER (M)      =        .7600
   STACK VELOCITY (M/S)    =       9.8052
   STACK GAS TEMP (K)      =     561.0000
   AMBIENT AIR TEMP (K)    =     293.0000
   RECEPTOR HEIGHT (M)     =        .0000
   URBAN/RURAL OPTION      =        RURAL

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


BUOY. FLUX =    6.633 M**4/S**3;  MOM. FLUX =     7.251 M**4/S**2.


FINAL STABLE PLUME HEIGHT (M) =    40.8
DISTANCE TO FINAL RISE (M)     =  151.3

                         *VALLEY 24-HR CALCS*   **SIMPLE TERRAIN 24-HR
CALCS**
 TERR        MAX 24-HR               PLUME HT              PLUME HT
  HT    DIST    CONC        CONC     ABOVE STK    CONC    ABOVE STK    U10M
USTK
 (M)    (M)   (UG/M**3)   (UG/M**3)  BASE (M)  (UG/M**3)  HGT (M)  SC  (M/S)
----- ------- ----------  ---------- -------   ---------- -------  -- ----
----
  23.   456.  25.95       12.86        40.8    25.95       17.7    4  5.0
5.0
 123.  1000.  10.04       10.04        40.8    .0000         .0    0   .0
.0
 223.  1200.  7.925       7.925        40.8    .0000         .0    0   .0
.0
 323.  1500.  5.867       5.867        40.8    .0000         .0    0   .0
.0
                                                             10/06/05
                                                             11:22:08
 ***  SCREEN3 MODEL RUN  ***
 *** VERSION DATED 96043 ***

Agrium SPA Project - Hot Oil Heater TAPs Modeling - Complex Terrain Included

SIMPLE TERRAIN INPUTS:
   SOURCE TYPE             =        POINT
   EMISSION RATE (G/S)     =      1.00000
   STACK HEIGHT (M)        =       6.7000
   STK INSIDE DIAM (M)     =        .7600
   STK EXIT VELOCITY (M/S)=        9.8052
   STK GAS EXIT TEMP (K)   =     561.0000
   AMBIENT AIR TEMP (K)    =     293.0000
   RECEPTOR HEIGHT (M)     =        .0000
   URBAN/RURAL OPTION      =        RURAL
```

BUILDING HEIGHT (M) = .0000
MIN HORIZ BLDG DIM (M) = .0000
MAX HORIZ BLDG DIM (M) = .0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM
VOLUME FLOW RATE = 9425.0000 (ACFM)

BUOY. FLUX = 6.633 M**4/S**3; MOM. FLUX = 7.251 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
456.	41.68	4	8.0	8.0	2560.0	17.35	33.37	17.27	NO
500.	40.20	4	5.0	5.0	1600.0	24.41	36.50	18.98	NO
600.	36.33	4	4.5	4.5	1440.0	26.38	43.09	21.94	NO
700.	32.93	4	4.0	4.0	1280.0	28.84	49.59	24.85	NO
800.	30.07	4	3.5	3.5	1120.0	32.00	56.04	27.74	NO
900.	27.59	4	3.5	3.5	1120.0	32.00	62.30	30.34	NO
1000.	25.68	4	3.0	3.0	960.0	36.22	68.65	33.18	NO
1100.	23.74	4	3.0	3.0	960.0	36.22	74.79	35.15	NO
1200.	22.28	4	2.5	2.5	800.0	42.12	81.07	37.48	NO
1300.	20.94	4	2.5	2.5	800.0	42.12	87.11	39.33	NO
1400.	19.68	4	2.5	2.5	800.0	42.12	93.10	41.12	NO
1500.	19.82	5	1.0	1.0	10000.0	62.54	75.40	32.17	NO
1600.	20.35	5	1.0	1.0	10000.0	62.54	79.76	33.18	NO
1700.	20.76	5	1.0	1.0	10000.0	62.54	84.10	34.18	NO
1800.	21.05	5	1.0	1.0	10000.0	62.54	88.43	35.16	NO
1900.	21.24	5	1.0	1.0	10000.0	62.54	92.73	36.14	NO
2000.	21.65	6	1.0	1.0	10000.0	53.04	65.04	25.36	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 456. M:

456.	41.68	4	8.0	8.0	2560.0	17.35	33.37	17.27	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	41.68	456.	0.

```
COMPLEX TERRAIN     25.95          456.       23. (24-HR CONC)

***************************************************
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
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